

CLAIMS

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application.

Listing of Claims:

1. (Currently amended) A stent for use in the non-vascular or vascular field, the stent comprising
a basic structure made of a material selected from the group consisting of a biodegradable plastic material and a degradable metal; and
a biodegradable SMP material for use in the non-vascular or vascular field, wherein the SMP material is selected from the group consisting of covalent polymer networks and covalent polymer interpenetrating networks, and
wherein the SMP material covers the basic structure.
2. (Canceled)
3. (Currently amended) The stent of claim 21, wherein the degradable metal includes one of the following: a magnesium alloy, pure magnesium, and a composite of magnesium or a magnesium alloy with biodegradable polymer.
4. (Previously presented) The stent of claim 1, further comprising additional additives selected among x ray contrast materials and medically effective compounds.
5. (Previously presented) The stent of claim 1, wherein the SMP material is selected from among the following: polymer networks, thermoplastic SMP materials, composite materials and blends.

6. (Previously presented) The stent of claim 1, wherein the SMP material is selected from among at least one of SMP materials in which the SMP effect is induced thermally, is photo induced, wherein the SMP material is biocompatible, hemocompatible and wherein the SMP material reveals a particle free degradation behavior.

7. (Previously presented) The stent of claim 5, wherein the network includes at least one of the following: caprolacton units and pentadecalacton units.

8. (Previously presented) The stent of claim 7, wherein the network consists of cross linked caprolacton macromonomers.

9. (Previously presented) The stent of claim 1, wherein the stent additionally comprises a surface coating.

10. (Previously presented) The stent of claim 9, wherein the surface coating is selected among the coatings that modify hemocompatibility.

11. (Currently amended) A method of manufacturing ~~a the stent of Claim 1 a biodegradable SMP material~~, comprising the processing of the SMP material to ~~a the stent~~ by one of the following extrusion methods, coating methods, metal casting methods, and spinning and weaving methods.

12. (Currently amended) A system, comprising ~~a the stent of Claim 1 of a biodegradable SMP material~~, and including at least one of the following: a temperature controlled balloon catheter and a balloon catheter with an optical fiber.

13. (Currently amended) A method for the minimal invasive implantation of ~~a the stent of Claim 1~~, comprising the following steps:

placing ~~a the stent of a biodegradable SMP material onto a catheter selected from the group consisting of~~ a temperature controlled balloon catheter or a balloon catheter with an optical fiber, wherein the SMP material has two shapes in the memory and wherein

this material was programmed to two shapes, wherein the first shape, compared to the second shape, is a tubular shape with a larger diameter;

inserting the stent placed in this manner to the desired position, wherein the SMP material exists in its second shape;

heating the stent by inserting a heating medium into the catheter, and introduction of light (preferably UV light) of a suitable wavelength;

activating the SMP effect to bring the stent into the first shape; and

removing the balloon catheter.

14. (Currently amended) A method for the minimal invasion implantation of ~~a~~the stent of Claim 1, comprising the following steps:

placing ~~a~~the stent of ~~a biodegradable material~~ SMP material onto one of the following:
a temperature controlled balloon catheter and a balloon catheter having a an optical fiber;

inserting the stent placed in this manner to the desired position;

one of:

heating the stent by inserting a heating medium into the catheter and introducing light (preferably UV light) of a suitable wavelength;

activating the SMP effect to bring the stent into its permanent shape; and

removing the balloon catheter.